



15N25-P

Preliminary

Power MOSFET

15A, 250V N-CHANNEL POWER MOSFET

DESCRIPTION

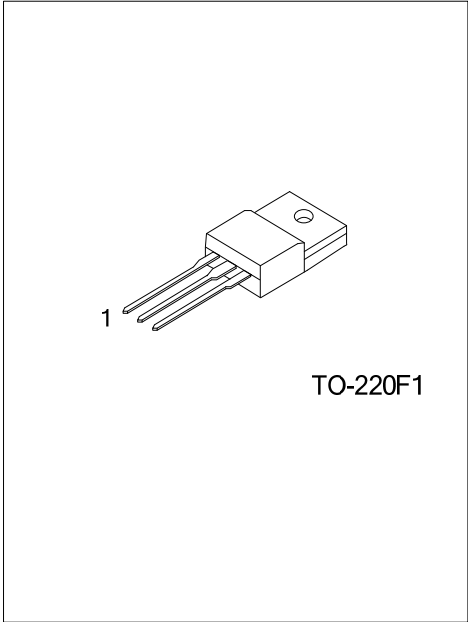
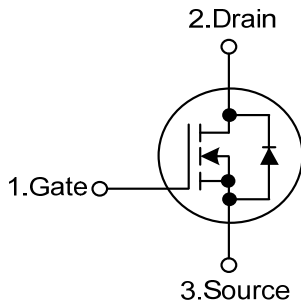
The UTC **15N25-P** is an N-channel enhancement MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **15N25-P** is universally applied in low voltage such as automotive, high efficiency switching for DC/DC converters and DC motor control, etc.

FEATURES

- * $R_{DS(ON)}=0.25\Omega @ V_{GS}=10V, I_D=7.5A$
- * Low Gate Charge (Typical 33nC)
- * Low C_{RSS} (Typical 25pF)
- * High Switching Speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
15N25L-TF1-T	15N25G-TF1-T	TO-220F1	G	D	S	Tube
15N25L-TF1-R	15N25G-TF1-R	TO-220F1	G	D	S	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

<p>15N25L-TF1-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) T: Tube, R: Tape Reel (2) TF1: TO-220F1 (3) L: Lead Free, G: Halogen Free</p>
---	--

■ ABSOLUTE MAXIMUM RATINGS (unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	250	V
Gate-Source Voltage		V_{GSS}	± 30	V
Continuous Drain Current	Continuous	I_D	15	A
	Pulsed	I_{DM}	60	A
Single Pulsed Avalanche Current		I_{AS}	15	A
Single Pulsed Avalanche Energy		E_{AS}	340	mJ
Power Dissipation		P_D	83	W
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	110	$^{\circ}\text{C}/\text{W}$
Junction to Case	θ_{JC}	1.5	$^{\circ}\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	250			V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=250\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+30\text{V}, V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-30\text{V}, V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=7.5\text{A}$		0.18	0.25	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1.0\text{MHz}$		830	1080	pF
Output Capacitance		C_{OSS}			200	260	pF
Reverse Transfer Capacitance		C_{RSS}			25	33	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{GS}=10\text{V}, V_{DD}=120\text{V}, I_D=18\text{A}$		33	40	nC
Gate to Source Charge		Q_{GS}			6		nC
Gate to Drain Charge		Q_{GD}			6.7		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=1\text{A}, R_G=25\Omega,$ $V_{GS}=10\text{V}, R_L=30\Omega$		23	35	ns
Rise Time		t_R			50	74	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			314	332	ns
Fall-Time		t_F			89	97	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S				15	A
Maximum Body-Diode Pulsed Current		I_{SM}				60	A
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=15\text{A}, V_{GS}=0\text{V}$			1.5	V

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.